Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-64 are pending in the application, with claims 1, 28, 33 and 60 being the independent claims. Claim 8 is sought to be amended to correct a typographical error therein. The specification has also been amended to provide serial number information for the provisional application to which the present application claims priority. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Allowable Subject Matter

Applicant gratefully acknowledges the Examiner's indication that claims 60-64 are allowable over the prior art of record.

Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1-8 and 28-40 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,487,086 to Bhaskar ("Bhaskar"). For the reasons set forth below, Applicant respectfully traverses.

Bhaskar is directed to a method and apparatus for quantizing a residual signal that is encountered in predictive coding techniques. *See* Bhaskar, col. 3, ll. 5-8. Bhaskar performs quantization of the residual signal using a technique called "Transform Domain Vector Quantization" or "TVQ", which is described in Bhaskar as follows:

> This invention proposes the Transform Domain Vector Quantization (TVQ), a novel approach to implementing the residual quantization. Here, the residual is first transformed from the time domain to a transform domain by an orthogonal transform such as the discrete cosine transform (DCT). The resulting transform coefficients are grouped into vectors. This grouping is performed in an adaptive manner, based on the spectral power distribution of the input signal. The bits available for the transmission of the residual signal are divided equally among the vectors. Each of these vectors is quantized by a vector quantizer. A weighting function that takes into account the auditory noise masking properties of the human ear as well as the synthesis filter response characteristics is used to select the optimum code vector to represent each transform coefficient vector.

Bhaskar, col. 3, ll. 21-37.

In contrast, claim 1 is directed to method of coding a speech or audio signal. The method of claim 1 includes the steps of:

> (a) predicting the speech signal to derive a residual signal;
> (b) combining the residual signal with a first noise feedback signal to produce a predictive quantizer input signal;
> (c) predictively quantizing the predictive quantizer input signal to produce a predictive quantizer output signal associated with a predictive quantization noise; and
> (d) filtering the predictive quantization noise to produce the first noise feedback signal.

Bhaskar does not teach or suggest each of the foregoing features of claim 1. For example, Bhaskar does not teach or suggest "combining the residual signal with a first noise feedback signal to produce a predictive quantizer input signal" as recited in claim 1. The Examiner has suggested that this feature is taught in FIG. 2 and at column 6, lines 50-55, of Bhaskar. In particular, the Examiner has stated that Bhaskar shows that "the

residual [signal] is combined with the quantized parameters to produce a predictive quantizer [input signal] (Fig. 2), along with the associated noise (col. 6 lines 50-55)."

However, to the extent the Examiner's statement can be understood, FIG. 2 of Bhaskar does not show this. FIG. 2 of Bhaskar depicts an encoder in which an input signal is processed by a short term predictor 21 and a long term predictor 22 to produce a residual signal. The residual signal is then quantized using a Transform Domain Vector Quantization (TVQ) circuit 23. The filter parameters used by the short term and long term predictors are also quantized. The quantized residual signal and quantized parameters are then combined in a multiplexer 29 and transmitted to a decoder.

Nowhere in FIG. 2 of Bhaskar is the residual signal combined with the quantized short term and long term filter parameters as suggested by the Examiner. Moreover, even if Bhaskar did somehow show an encoder structure that could combine a residual signal with quantized short term and long term filter parameters, this is not the same as "combining the residual signal with a first noise feedback signal to produce a predictive quantizer input signal" as recited in claim 1. FIG. 2 of Bhaskar does not even show a noise feedback signal. In this regard, the Examiner's reference to "associated noise" at column 6, lines 50-55 is misplaced. That text refers to a "noise masking parameter" that is used by TVQ circuit 23 as a weighting factor in selecting an optimal quantization codevector, and bears no relation to the recited "first noise feedback signal" of claim 1.

Since Bhaskar does not teach or suggest each and every limitation of claim 1, it cannot anticipate that claim. Accordingly, the Examiner's rejection of claim 1 under 35 U.S.C. § 102(b) is traversed and Applicant respectfully request that the rejection be reconsidered and withdrawn. Dependent claims 2-8 are also not anticipated by Bhaskar for at least the same reasons as independent claim 1 from which they depend and further

in view of their own respective features. Accordingly, the Examiner's rejections of claims 2-8 under 35 U.S.C. § 102(b) are likewise traversed and Applicant respectfully request that these rejections be reconsidered and withdrawn.

Claim 28 is directed to a method of coding a speech or audio signal. The method of claim 28 includes the steps of:

> (a) short-term and long-term predicting the speech signal to produce a short-term and long-term predicted speech signal;
> (b) combining the short-term and long-term predicted speech signal with the speech signal to produce a residual signal;
> (c) combining the residual signal with a noise feedback signal to produce a quantizer input signal;
> (d) quantizing the quantizer input signal to produce a quantizer output signal associated with a quantization noise; and
> (e) filtering the quantization noise to produce the noise feedback signal.

Bhaskar does not teach or suggest each of the foregoing features of claim 28. For example, Bhaskar does not teach or suggest "combining the short-term and long-term predicted speech signal with the speech signal to produce a residual signal" and "combining the residual signal with a noise feedback signal to produce a quantizer input signal" as recited in claim 28. The Examiner has indicated that the latter feature is taught in FIG. 2 and at column 6, lines 50-55, of Bhaskar. However, as explained above in reference to claim 1, FIG. 2 of Bhaskar does not even show a noise feedback signal, and the reference to a "noise masking parameter" in the cited text at column 6, lines 50-55, bears no relation to the recited "noise feedback signal".

Since Bhaskar does not teach or suggest each and every limitation of claim 28, it cannot anticipate that claim. Accordingly, the Examiner's rejection of claim 28 under 35 U.S.C. § 102(b) is traversed and Applicant respectfully request that the rejection be reconsidered and withdrawn. Dependent claims 29-32 are also not anticipated by Bhaskar for at least the same reasons as independent claim 28 from which they depend

and further in view of their own respective features. Accordingly, the Examiner's rejections of claims 29-32 under 35 U.S.C. § 102(b) are likewise traversed and Applicant respectfully request that these rejections be reconsidered and withdrawn.

Claim 33 is directed to an apparatus for coding a speech or audio signal. The apparatus of claim 33 includes:

> a first predictor adapted to predict the speech signal so as to derive a residual signal;
> a first combiner adapted to combine the residual signal with a first noise feedback signal to produce a predictive quantizer input signal;
> a predictive quantizer adapted to predictively quantize the quantizer input signal to produce a predictive quantizer output signal associated with a predictive quantization noise; and
> a first filter adapted to filter the predictive quantization noise to produce the first noise feedback signal.

Bhaskar does not teach or suggest each of the foregoing features of claim 33. For example, Bhaskar does not teach "a first combiner adapted to combine the residual signal with a first noise feedback signal to produce a predictive quantizer input signal" as recited in claim 33. The Examiner has indicated that this feature is taught in FIG. 2 and at column 6, lines 50-55, of Bhaskar. However, as explained above in reference to claim 1, FIG. 2 of Bhaskar does not even show a noise feedback signal, and the reference to a "noise masking parameter" in the cited text at column 6, lines 50-55, bears no relation to the recited "noise feedback signal".

Since Bhaskar does not teach or suggest each and every limitation of claim 33, it cannot anticipate that claim. Accordingly, the Examiner's rejection of claim 33 under 35 U.S.C. § 102(b) is traversed and Applicant respectfully request that the rejection be reconsidered and withdrawn. Dependent claims 34-40 are also not anticipated by Bhaskar for at least the same reasons as independent claim 33 from which they depend and further in view of their own respective features. Accordingly, the Examiner's

rejections of claims 34-40 under 35 U.S.C. § 102(b) are likewise traversed and Applicant respectfully request that these rejections be reconsidered and withdrawn.

Other Matters

The Examiner has objected to claims 9-27 and 41-59 as being dependent upon a rejected base claim. Based on the foregoing remarks, Applicant has traversed the rejection of the base claims upon which these claims depend. Accordingly, Applicant respectfully requests that these objections be reconsidered and withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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